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1           16. The method of claim 14, wherein the header section further includes another  
2   subset of the header marking regions indicative of a tuning pattern usable for defining  
3   image-distortion characteristics .

1           17. A method of encoding binary data for transmission over an image data channel,  
2   comprising:  
3           encoding the binary data into a linear matrix image having image attributes which  
4   ensure that a transformed linear matrix image produced after the transmission over the  
5   image data channel is decodable so as to reconstruct the binary data from the transformed  
6   linear matrix image; and  
7           electronically storing the linear matrix image as an image file.

1           18. A method of encoding binary data for transmission over an image data channel,  
2   comprising:  
3           identifying image-distortion characteristics of the image data channel;  
4           analyzing the image-distortion characteristics so as to define attributes of an  
5   encoded linear matrix image, the attributes defined such that a transformed linear matrix  
6   image formed by distorting the encoded linear matrix image according to the image-  
7   distortion characteristics is reconstructable into the linear matrix image; and  
8           encoding the binary data into the encoded linear matrix image having the  
9   attributes.

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1           19. A method of recovering binary data encoded in an encoded linear matrix image  
2 from a received linear matrix image received over an image data channel, comprising:

3           analyzing a header section of the received linear matrix image to determine image-  
4 distortion characteristics of the image data channel;

5           decoding the header section according to the image-distortion characteristics so as  
6 to recover at least one encoding parameter, the at least one encoding parameter previously  
7 used to encode the binary data; and

8           decoding a data section of the received linear matrix image according to the at  
9 least one encoding parameter so as to form recovered binary data.

1           20. The method of claim 19, further comprising:

2           recognizing a detection key in the header section.

1           21. The method of claim 19, wherein the analyzing further comprises:

2           comparing a tuning pattern portion of the header section to a predetermined tuning  
3 pattern to determine the image-distortion characteristics.

1           22. The method of claim 19, further comprising:

2           utilizing the recovered binary data.

1           23. The method of claim 22, wherein the binary data includes a firmware upgrade

2 for a printing apparatus, and wherein the utilizing further comprises installing the firmware

3 upgrade in the printing apparatus.

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1           24. The method of claim 19, further comprising:  
2           segregating the received linear matrix image from other channel data received from  
3           the image data channel.

1           25. The method of claim 19, wherein the at least one encoding parameter is  
2           selected from the group consisting of a number of color channels, a safe image width, a  
3           safe image height, a minimum X block size, a minimum Y block size, a minimum color  
4           offset, a minimum color value, and a maximum color value

1           26. The method of claim 19, wherein the binary data encoded in the encoded linear  
2           matrix image is encrypted and wherein the at least one encoding parameter includes an  
3           encryption key, further comprising:  
4           decrypting the recovered binary data using the encryption key.

1           27. A method of sending binary data over an image data channel, comprising:  
2           encoding the binary data into an encoded linear matrix image;  
3           transmitting the encoded linear matrix image over the image data channel; and  
4           decoding the received linear matrix image to recover the binary data.

1           28. The method of claim 27, wherein the transmitting includes distorting the  
2           encoded linear matrix image to form a transformed linear matrix image, and wherein the  
3           decoding includes decoding the transformed linear matrix image.